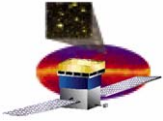


GLAST Large Area Telescope

Instrument Flight Software

**LAT Monthly
Nov 3, 2005**

Terry Schalk/Dick Horn



The Schedule

- Meeting milestones continues to be a problem

Excuses:

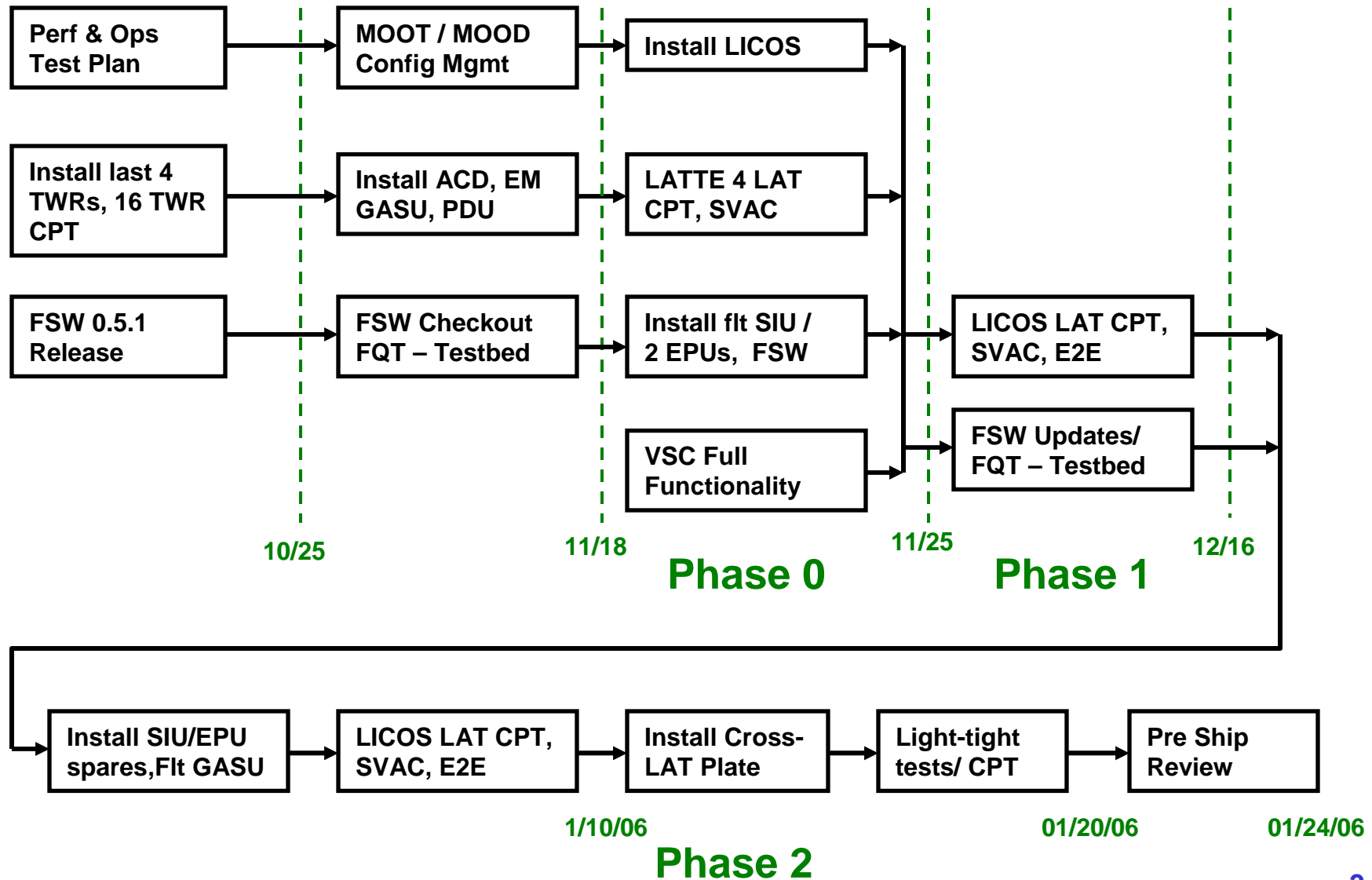
- Key manpower on vacation -> Everybody is back
- Under estimate development complexity -> JIRA Focus
- Setting optimistic milestones to drive out priorities -> Yep

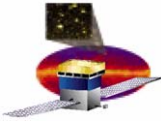
This will continue to be a battle resulting in re-plans

- Near term risks
 - Minimal System level use of FSW to date
 - Unplanned work: Will find/fix critical bugs with more users
 - Key FSW developers need to support I&T System Script development
- Positive trends
 - FSW-DAQ-I&T working to a common plan/goal
 - With complete data chain; focus will be fixed on fewer goals
 - Common focus will narrow to supporting building 33

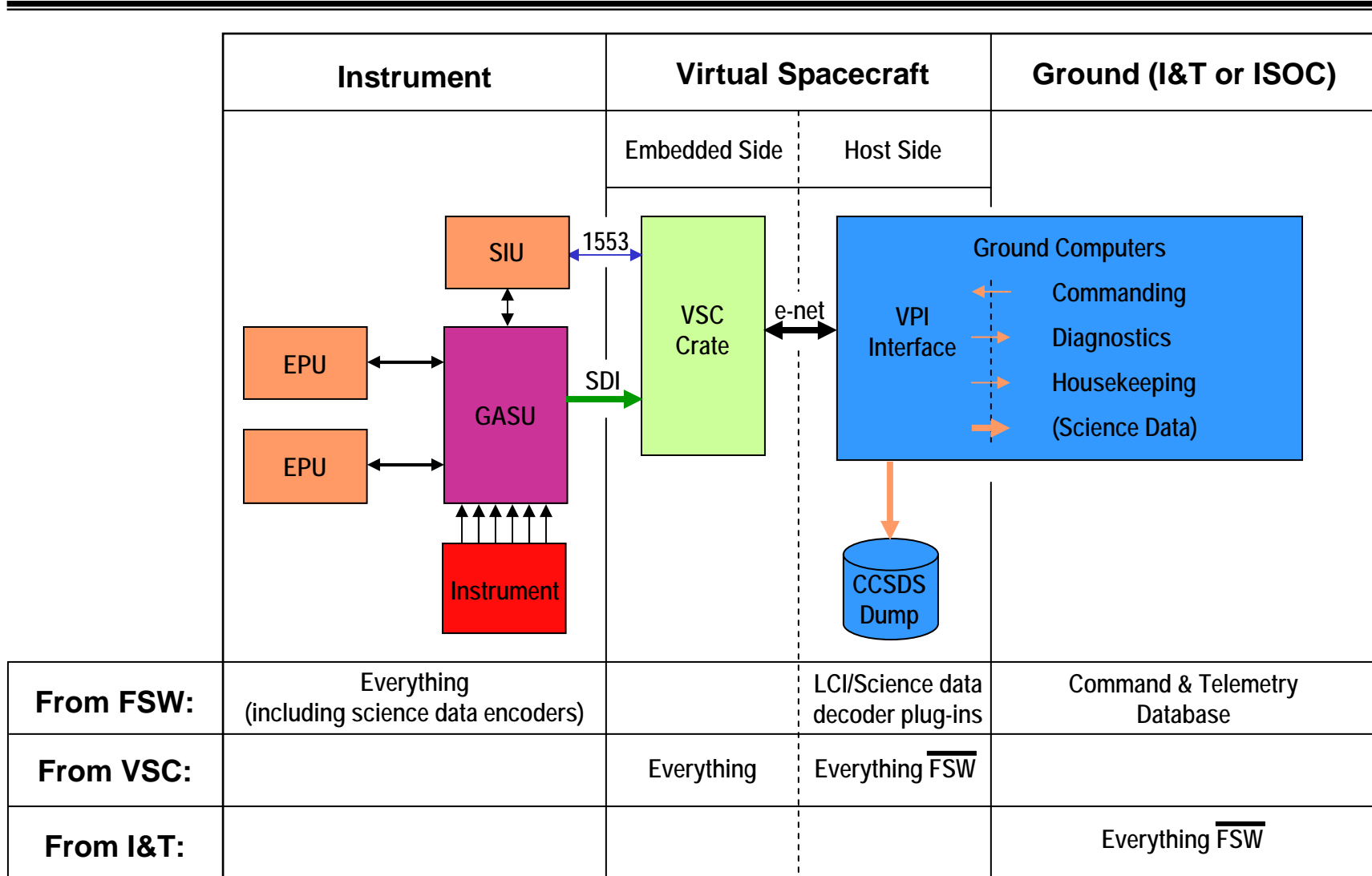


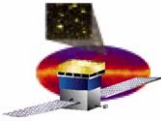
System Test Flow



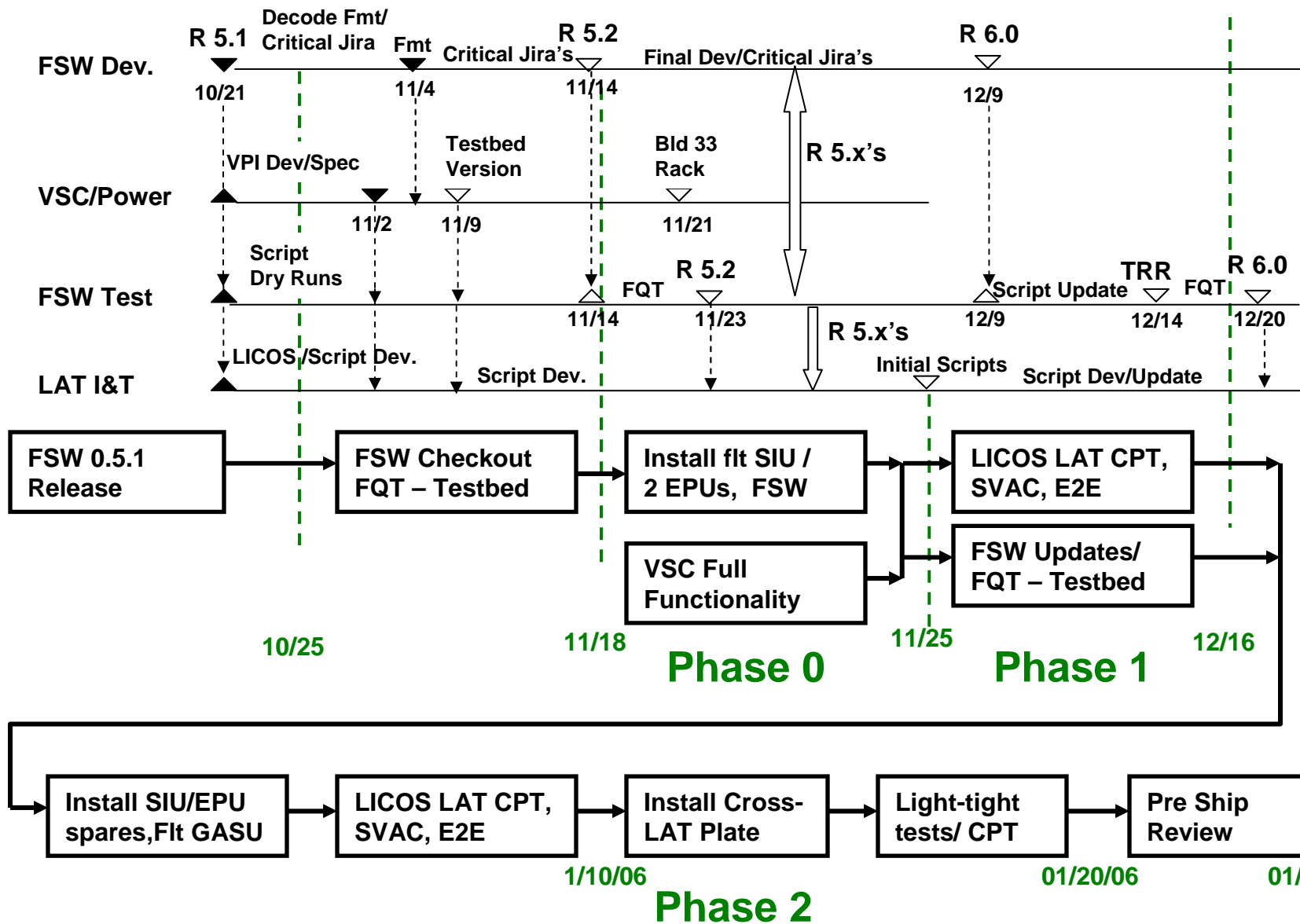


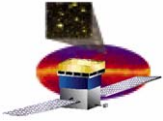
FSW & Dataflow Responsibilities





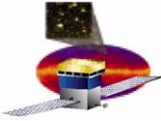
FSW Support to System Test Flow





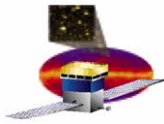
FSW Status

- **Release 5.1 Complete**
 - **Multiple Hours of System Runs**
 - **FSW Contribution to VPI Complete**
 - **Test Script Development/Closure pending VPI closure**
- **Release 5.2 Target for Phase 1 FQT**
 - **Critical Jira Items Identified**
 - **No known FSW development roadblocks**
 - **FQT ECD 23 Nov**
- **Release 6.0 Target For Formal FQT**
 - **Incorporate Lessons Learned**
 - **Deferred Major Jira Items**
 - **Initial Filters, GRB and data compression**
 - **FQT ECD 20 Dec**



Critical Development Issues Summary

- **Science datagram updates**
 - Enhance schema to support VSC interface (FSW-353)
 - Additional items for LPA (FSW-344)
- **LCI improvements**
 - LCI encoding bug (FSW-364)
 - LCI enhancements for ACD (FSW-317)
 - Decode functions for LCI data (FSW-277)
- **Backtrack CDM database to unique key (FSW-316)**



Open Critical & Blocker Issues

Key	Components	Summary	Assignee	Description	Pr
FSW-364	LSEC	Caclulated the length of the compressed event data to be one quarter of the true length	James Swain	The arithmetic probability encoder finish function returns the number of bits written into the output buffer. LSEC operates on 32 bit words, so the number of bits is rounded up to the next whole word to give the length of the compressed data. Having calculated the number of words, the length is divided by sizeof(unsigned), so only one quarter of the compressed event is consigned.	Blocker
FSW-359	LSEC	The encoded calibration events do not contain the event build word or event summary word from any contribution	James Swain	The event builder word and event summary word together form the header to a contribution. Rather than reconstruct these in offline software, they should be included in the compacted calibration events. I have performed this work "at risk" since I needed to make this correction in order to proceed with QSEC development. The time estimate is the time required to release a new version of LSEC.	Blocker
FSW-353	LSE LSF QSEC LSEC QSEP QSE	Science Datagram Schema needs to be enhanced to support the proposed VSC interface	James J Russell	The proposed VSC interface requires an enhancement to the LSF datagram schema. In order to hide unnecessary details, the standard datagram header needs an option to accommodate a root contribution. In terms of programming, this only adds 1 option bit and a 32-bit length word to the LSF datagram header and a small amount of code in LSE to use this feature. The current toy decoders, which to this point have been advertised as prototypes, should only have to be rebuilt (i.e. no new coding). This means new versions of LSF, LSE, LSEP, LSEC, QSE, QSEP, QSEC.	Critical
FSW-344	LPA	LPA Needs Context Information Included in Datagrams	Sergio Maldonado	LPA needs to record LATC file IDs in the datagrams. Additionally, time of last LATC verification should be included.	Critical
FSW-317	LATC LCI	More registers need to be included in the LCI	James Swain	From Lester Miller (I&T) New iterables to be placed in ACD version of LCI: ARC.hitmap_delay ARC.hold_delay AFE.bias_dac AFE.configuration* * for this register, iteration is defined as enable	Critical
FSW-316	SIB VXW LFS LHK CDM CMX FILE	Package CDM should provide a method to backtrack a CDM database to the unique key of the database file	A.P.Waite	To ensure uniquely identified databases, CDM needs to provide a method to backtrack from the database handle to the file key of the file containing the database. This turns out to be tricky, because CDM is a very low level package and cannot call FILE facilities without making the package use tree go circular. As a stop gap measure, the development version of CDM provides this kind of functionality (an entry poitn called CDM_getKey()), but there is currently nothing behind the implementation. This could be released into production so that JJ et al. can pretend that they're recording file keys. The estimate is for releasing this fake implementation into production.	Critical
FSW-277	QSEC	Write decode functions for the encoded LCI data	James Swain	The QSEC package will contain the public interface between FSW and our clients for calibration event and context data. It will also provide functions to unpack the calibration datagrams. The development process for these functions will involve JJ and me agreeing on the "natural" event format.	Critical



Test Summary

- **Script status**
 - 20 of 46 scripts run to successful completion
 - Completion of 17 of 46 scripts awaiting finalization of science data format
 - Remaining 9 scripts in process or awaiting other development liens
- **Formal dry runs with SQA have begun**
- **Dataflow lab priority now shifted from core development to testing & fixes**
- **Test schedule**
 - 11/9 Science data format related VSC capability complete
 - 11/14 Receive R5.2 as test object
 - 11/17->23 FSW System Checkout FQT



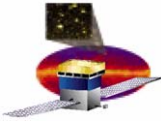
Test Script Status (1 of 3)

Test Script (in priority and planned execution order)	Tester	Milestones				
		Initial Dry Run	Open Dev Liens*	Complete Dry Run	Test Lead Review	Formal Dry Run
Primary Boot (nominal)						
FSWINI_001: SIU primary boot	IK	√	√	√		
FSWINI_009: SIU boot status on discrete lines and SIU boot housekeeping telemetry	IK	√	√			
FSWINI_005: EPU primary boot	IK	√	√	√		
CMDFNC_001: Soft reset	SC	√	√	√		√
Secondary boot (nominal)						
FSWINI_010: SIU and EPU secondary boot	IK	√	√	√		
NBTLMV_001: Housekeeping and low-rate science	SC	√	√	√		
Configuration (nominal)						
SIUCFG_001: LAT subsystem data collection	SM	√	√	√	√	
SIUCFG_002: LAT subsystem configuration	SM	√	√	√	√	
FILMGT_001: File management	SC	√	√	√		
Mode Control						
OPMODE_001: Mode control	SM	√	√	√	√	
Charge Injection						
FECALB_001: TOT measurements	IV	√	2			
FECALB_002: TKR Threshold and charge scans	IV	√	2			
FECALB_003: TKR Trigger check	IV	√	2			
FECALB_004: ACD CI	IV	√	2			
FECALB_005: CAL CI	IV	√	2			



Test Script Status (2 of 3)

Diagnostic functions						
DCMODE_001: ACD Diagnostics and Calibration	SM	√	2			
DCMODE_002: CAL Diagnostics and Calibration	SM	√	2			
DCMODE_003: TKR Diagnostics and Calibration	SM	√	2			
EVTPMO_001: Deadtime	IV	11/4/2005	2			
EVTPMO_002: VETO rates from GEM	IV	√	2			
EVTPMO_003: L1 Trigger Rates	IV	11/4/2005	2			
EVTPMO_004: Monitor CNO Rates	IV	11/4/2005	2			
Filter						
EVTFIL_001: Interface from the Event Builder	IV	11/4/2005	2			
EVTFIL_002: Rates and capacity	IV	√	2			
EVTFIL_003: Reprogramming	IV	11/4/2005	2			
EVTFIL_004: Filter bypass	IV	11/4/2005	2			
WBTLMV_001: Science data format and volume	IV	11/4/2005	2			
Primary boot (non-nominal)						
FSWINI_002: Boot self-test	IK	√	√	√		
FSWINI_003: Multiple boot images	IK	√	√	√		
FSWINI_004: SIU hardware reboot in response to signal on the discrete lines	IK	√	√	√		
FSWINI_007: Storage and retrieval of system errors during SIU primary boot	IK	√	√	√		
FSWINI_006: Reset source	IK	√	√	√		
FSWINI_008: Storage and retrieval of system errors during EPU primary boot	IK	√	√	√		
FSWINI_012: SEU protection	IK	11/4/2005	√			
FSWINI_013: Memory scrubbing	IK	11/4/2005	√			
FSWINI_014: Watchdog management during boot	IK	11/4/2005	√			



Test Script Status (3 of 3)

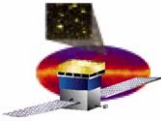
Secondary boot (non-nominal)						
FSWINI_011: SIU and EPU secondary boot error mitigation	IK	√	√			
CMDFNC_003: 1553 interface and command functional verification	SC	√				
Configuration (non-nominal)						
MEMMGT_001: Memory management	SC	√	√	√		
MEMMGT_002: Memory load data	SC	√	A			
Other non-nominal						
NBTLMV_003: ACD HSK anomaly response and alert telemetry	SC	11/4/2005				
TIMPRC_001: Time Services	SM	√	√	√	√	
Interface formats						
NBTLMV_002: Diagnostic telemetry	SC	√		√		
IPCFNC_001: Inter-processor communications	SM	√	√	√	√	
VSGIFV_001: Discrete Signal interfaces	SM	√	√	√	√	
Thermal						
THRMCS_001: Thermal control system	SM	√	√			

***Development Liens**

- 1) Closed
- 2) VSC science data processing

Other Liens

- A) Autoboot



JIRA Metrics

